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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,303	09/30/2003	Patrick Mergell	P03,0380	5358
26574	7590	03/23/2006	EXAMINER	
SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473			BRINEY III, WALTER F	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/675,303	MERGELL, PATRICK	
	Examiner	Art Unit	
	Walter F. Briney III	2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-11 and 13-16 is/are rejected.
- 7) ☒ Claim(s) 4 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20 February 2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "device to adapt a hearing aid" of claims 9-14 and the "hearing device" of claims 15 and 16 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 1-3, 5-11 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Nordqvist et al. (WO 01/76321 A1).**

Claim 1 is limited to “a method to adapt a hearing aid”. Nordqvist discloses a hearing prosthesis with automatic classification of the listening environment. See Abstract. Figure 1 depicts all elements of the prosthesis. Figure 2 depicts a signal-processing algorithm for detecting listening environments and “adapting” a filtering parameter 450. Figure 3 depicts a detailed listening environment classification process. In particular, the process of figure 3 includes a plurality of Hidden Markov Models that generate probabilities, i.e. “continuous weighting function”, based on a stream of observed centroid indices and matrices, i.e. “supporting points”. See page 20, lines 17-28. The matrices weight the observed centroid indices in accordance with the equation found on page 20, line 28. In this way, the matrices represent “an individual weighting of the evaluation data of one of the predetermined auditory situations”. See page 20, lines 12-15. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 2 is limited to “the method according to claim 1”, as covered by Nordqvist. As noted in page 20, lines 12-15, a “sound signal analysis” is performed off-line with the

Generalized Lloyd algorithm, which produces the codebook $[c^1 \dots c^M]$, i.e. "evaluation data". Therefore, Nordqvist anticipates all limitations of the claim.

Claim 3 is limited to "the method according to claim 1", as covered by Nordqvist. As noted in page 20, lines 6-15, code words are produced during off-line training. The training material consists of real-life recordings of sounds, i.e. "specific audio signals that are characteristic of the predetermined auditory situations." Therefore, Nordqvist anticipates all limitations of the claim.

Claim 5 is limited to "the method according to claim 1", as covered by Nordqvist. Nordqvist discloses operating the algorithm of figures 2 and 3 such that a filter is adjusted relative to a current listening environment. When a user is in an environment the Hidden Markov Models will generate a probability based on the current input. In this way, the probabilities output by the Hidden Markov Models will be determined according to "auditory situations characteristic for the hearing device user". Therefore, Nordqvist anticipates all limitations of the claim.

Claim 6 is limited to "the method according to claim 1", as covered by Nordqvist. The weighting function, which corresponds to the probability outputs of the Hidden Markov Models, is determined based on "at least one value of the evaluation data" $O(t)$ and "at least one adaptation parameter" α_o^{source} . Therefore, Nordqvist anticipates all limitations of the claim.

Claim 7 is limited to "a method for operating a hearing device". Nordqvist discloses receiving an input signal, i.e. "recording an audio signal of a current auditory situation". See page 17, lines 32-33. Nordqvist discloses extracting features from the

input signal using feature extractor 500, i.e. "calculating signal evaluation data from the audio signal". See page 19, lines 2-15. The features quantized into a plurality of codebook indices based on the continuous equation of page 20, line 11. Said equation utilizes "supporting points" $[c^1 \dots c^M]$ based on real-life recordings, i.e. "a predetermined auditory situation". Based on this weighting, a filter response is selected. See page 17, lines 27-31; figure 2. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 8 is limited to "the method for operating a hearing device according to claim 7", as covered by Nordqvist. As set forth in the Abstract of Nordqvist, acoustic signals of a listening environment are identified and used to select between auditory programs. This method is clearly for use "under real-time conditions". Therefore, Nordqvist anticipates all limitations of the claim.

Claim 9 is limited to "a device to adapt a hearing aid". Nordqvist discloses a codebook which is inherently stored, subsequently necessitating a "storage device configured to provide evaluation data", i.e. the codebook. It is noted that the codebook stores feature vectors for various situations. See page 20, lines 6-15. Nordqvist discloses a filter 450 that is adapted by way of devices 510-550, as seen in figures 2 and 3. In operation, quantizer 510 implements a continuous function (page 20, line 11) that runs via supporting points, i.e. code words, that represent individual weighting as recited. See page 20. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 10 is limited to "the device according to claim 9", as covered by Nordqvist. Nordqvist discloses feature extractor 500, which corresponds to "a sound signal

analysis device” as recited. See page 19, lines 2-15. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 11 is limited to “the device according to claim 9”, as covered by Nordqvist. The codebook provides weighted vectors based on input real-life recordings, which correspond to the “weighting vectors” as recited. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 13 is limited to “the device according to claim 9”, as covered by Nordqvist. As disclosed in page 20, lines 12-15, the codebook is initialized. All resources involved in that process correspond to “an offline adjustment device” as recited. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 14 is limited to “the device according to claim 13”, as covered by Nordqvist. The function of page 20, line 11, is determined by “at least one adaptation parameter” $\Delta f(t)$ and “a plurality of the evaluation data” c^i . Therefore, Nordqvist anticipates all limitations of the claim.

Claim 15 is limited to “a hearing device”. The method of claim 7 inherently requires all elements of the device herein. Therefore, Nordqvist anticipates all limitations of the claim.

Claim 16 is limited to “the hearing device according to claim 15”, as covered by Nordqvist. As noted in the rejection of claim 8, all adaptations are performed “under real-time conditions”. Therefore, Nordqvist anticipates all limitations of the claim.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

2. **Claims 4 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

Claim 4 is limited to “the method according to claim 3”, as covered by Nordqvist. Nordqvist simply mentions generating code words using the Generalized Lloyd algorithm, which is different than an eigenvector analysis. There is neither suggestion nor teaching to modify Nordqvist otherwise. Thus, claim 4 is allowable over the cited prior art.

Claim 12 is limited to “the device according to claim 11”, as covered by Nordqvist. For at least the same reasons as claim 4, claim 12 is allowable over the cited prior art.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB



SINH TRAN
SUPERVISORY PATENT EXAMINER